

WHAT IS CLAIMED IS:

1. A non-aqueous, dual-cure composition comprising:
- 5 a) from about 5 to about 85% by weight of a blocked (cyclo)aliphatic polyisocyanate prepared by
- i) reacting a hydroxy-functional (meth)acrylate with an organic (cyclo)aliphatic polyisocyanate with an NCO to OH equivalent ratio of from about 1.5:1 to about 3:1, with the resultant partially blocked isocyanate
- 10 having an isocyanate group content of from about 5 to about 13% by weight, and
- ii) reacting the remaining isocyanate groups with a blocking agent,
- b) from about 5 to about 85% by weight of a hydroxy-functional
- 15 polymer having an OH number of from about 10 to about 250 and an acid number of from about 0.1 to about 50, with the equivalent ratio of blocked isocyanate groups to hydroxy groups being from about 0.8:1 to about 1.2:1, said hydroxy-functional polymer being selected from the group consisting
- 20 of saturated polyesters, unsaturated polyesters, and mixtures thereof,
- c) from 0 to about 65% of an ethylenically unsaturated compound selected from the group consisting of ethylenically unsaturated monomers, polymers containing ethylenic
- 25 unsaturation (other than unsaturated polyesters), and mixtures thereof and
- d) from about 0.1 to about 7.0% by weight of a UV initiator for free-radical polymerization,
- 30 said percentages by weight totaling 100%, and with the proviso that if ingredient b) is a saturated polyester, ingredient c) is present in an amount of from about 20 to about 65% by weight.

2. The composition of Claim 1, wherein the hydroxy-functional polymer comprises a saturated polyester.
- 5 3. The composition of Claim 1, wherein the ethylenically unsaturated compound comprises an alkanediol diacrylate.
4. The composition of Claim 1, wherein the ethylenically unsaturated compound comprises 1,6-hexanediol diacrylate.
- 10 5. The composition of Claim 1, wherein the blocking agent comprises dimethylpyrazole (DMP).
6. A process for preparing a coated substrate comprising  
15 a) mixing:
  - i) from about 5 to about 85% by weight of a blocked (cyclo)aliphatic polyisocyanate prepared by
    - A) reacting a hydroxy-functional (meth)acrylate  
20 with an organic (cyclo)aliphatic polyisocyanate at an NCO to OH equivalent ratio of from about 1.5:1 to about 3:1, with the resultant partially blocked isocyanate having an isocyanate group content of from about 5 to about 13% by weight, and
    - 25 B) reacting the remaining isocyanate groups with a blocking agent,
  - ii) from about 5 to about 85% by weight of a hydroxy-functional polymer having an OH number of from about 10 to about 250 and an acid number of from about 0.1 to about 50, with the equivalent ratio of  
30 blocked isocyanate groups to hydroxy groups being

- from about 0.8:1 to about 1.2:1, said hydroxy-functional polymer being selected from the group consisting of saturated polyesters, unsaturated polyesters, and mixtures thereof,
- 5           iii)    from 0 to about 65% of an ethylenically unsaturated compound selected from the group consisting of ethylenically unsaturated monomers, polymers containing ethylenic unsaturation (other than unsaturated polyesters), and mixtures thereof and
- 10           iv)    from about 0.1 to about 7.0% by weight of a UV initiator for free-radical polymerization,
- said percentages by weight totaling 100%, and with the proviso that if ingredient ii) is a saturated polyester, ingredient iii) is present in an amount of from about 20 to
- 15           about 65% by weight,
- b)    applying the resultant composition to said substrate, and
- c)    curing the composition, by UV curing and thermal curing, to form the coating.
- 20    7.    The method of Claim 6, wherein the UV curing is performed before thermal curing.
8.    The method of Claim 6, wherein the thermal curing is performed before UV curing.
- 25    9.    A coated substrate comprising a substrate having applied thereto a coating produced by
- a)    mixing:
- i)    from about 5 to about 85% by weight of a blocked
- 30           (cyclo)aliphatic polyisocyanate prepared by

- 5 A) reacting a hydroxy-functional (meth)acrylate with an organic (cyclo)aliphatic polyisocyanate at an NCO to OH equivalent ratio of from about 1.5:1 to about 3:1, with the resultant partially blocked isocyanate having an isocyanate group content of from about 5 to about 13% by weight, and
- 10 B) reacting the remaining isocyanate groups with a blocking agent,
- 15 ii) from about 5 to about 85% by weight of a hydroxy-functional polymer having an OH number of from about 10 to about 250 and an acid number of from about 0.1 to about 50, with the equivalent ratio of blocked isocyanate groups to hydroxy groups being from about 0.8:1 to about 1.2:1, said hydroxy-functional polymer being selected from the group consisting of saturated polyesters, unsaturated polyesters, and mixtures thereof,
- 20 iii) from 0 to about 65% of an ethylenically unsaturated compound selected from the group consisting of ethylenically unsaturated monomers, polymers containing ethylenic unsaturation (other than unsaturated polyesters), and mixtures thereof and
- 25 iv) from about 0.1 to about 7.0% by weight of a UV initiator for free-radical polymerization, said percentages by weight totaling 100%, and with the proviso that if ingredient ii) is a saturated polyester, ingredient iii) is present in an amount of from about 20 to about 65% by weight,
- 30 b) applying the resultant composition to said substrate, and

- c) curing the composition, by UV curing and thermal curing, to form the coating.